

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled).

Claim 2 (currently amended): A method of performing measurements on at least a portion of a liquid sample in a clinical analyzer, comprising the steps of:

- (a) providing a clinical analyzer with sample handling apparatus having one or more sample containers holding an amount of sample liquid; with sample metering apparatus having a proboscis, one or more metering tips having a tubular shape with a metering aperture at one end, a metering pump coupled with the proboscis; and sample processing apparatus having one or more test elements;
- (b) attaching a tip to the proboscis to create a metering assembly;
- (c) moving the metering assembly to an initial aspiration position, in which the metering aperture of the tip is immersed in sample liquid;
- (d) creating a partial vacuum with the metering pump, causing a selected volume of sample liquid to be aspirated from a sample container into the tip;
- (e) moving the metering assembly to a dispensing position;
- (f) creating a partial pressure with the metering pump, causing a portion of the sample liquid to be dispensed from the metering tip onto a test element;

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

- (g) the sample processing apparatus then performing at least one clinical chemistry test and analysis;
- (h) the metering assembly moving to a tip ejection position;
- (i) sealing the metering aperture of the metering tip;
- (j) removing the metering tip from the proboscis;
- ([[j]]) k) performing a sample quality measurement on the sample liquid in the ejected tip;

wherein said steps (b)-([[h]]) g) are repeated in a primary analyzer cycle; wherein said steps step [[(h)-(j)]] k) are repeated in a secondary sample quality cycle; such that at least portions of the primary and secondary cycles occur simultaneously.

Claim 3 (original): The method of Claim 2, wherein the test elements are thin film slides.

Claim 4 (original): The method of Claim 2, wherein the step of performing a sample quality measurement includes performing at least one additional test that is also conducted during said step of performing clinical chemistry tests, further comprising the additional step of:

comparing the results of the tests, and using the comparison to calibrate the analyzer.

Claim 5 (original): The method of Claim 2, wherein the sample quality measurement is performed by a spectrophotometer.

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

Claim 5 (original): A method of performing measurements on at least a portion of a liquid sample in a clinical analyzer, comprising the steps of:

- (a) providing a clinical analyzer with sample handling apparatus having one or more sample containers holding an amount of sample liquid; with sample metering apparatus having a proboscis, one or more metering tips having a tubular shape with a metering aperture at one end, a metering pump coupled with the proboscis; and sample processing apparatus having one or more test elements;
- (b) attaching a tip to the proboscis to create a metering assembly;
- (c) moving the metering assembly to an initial aspiration position, in which the metering aperture of the tip is immersed in sample liquid;
- (d) creating a partial vacuum with the metering pump, causing a selected volume of sample liquid to be aspirated from a sample container into the tip;
- (e) moving the metering assembly to a dispensing position;
- (f) creating a partial pressure with the metering pump, causing a portion of the sample liquid to be dispensed from the metering tip onto a test element;
- (g) the sample processing apparatus then performing at least one clinical chemistry test and analysis;
- (h) sealing the metering aperture of the metering tip;
- (i) the metering assembly moving to a tip ejection position;
- (j) removing the metering tip from the proboscis;
- ([[j]] k) performing a spectrophotometric measurement on the sample liquid in the ejected tip;

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

wherein said steps (b)-([h]) g are repeated in a primary analyzer cycle;
wherein said steps step [(h)-(j)] k ~~are~~ repeated in a secondary spectrophotometric cycle;
such that at least portions of the primary and secondary cycles occur simultaneously.

Claim 7 (canceled).

Claim 8 (original): The method of Claim 6, wherein the tips have a tubular body and a capillary tip, connected by a cone; such that the sample quality measurement is performed through the cone of the tip.

Claim 9 (original): The method of Claim 6, wherein at least some of said steps are conducted automatically by a computer.

Claim 10 (original): The method of Claim 6, wherein the sample quality measurement step includes measuring hemoglobin, lipids, bilirubin, and biliverdin.

Claim 11 (canceled)

Claim 12 (original): A method of performing measurements on at least a portion of a liquid sample in a clinical analyzer, comprising the steps of:

- (a) providing a clinical analyzer with sample handling apparatus having one or more sample containers holding an amount of sample liquid; with sample metering apparatus having a proboscis, one or more metering tips having a tubular shape with a metering aperture at

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

one end, a metering pump coupled with the proboscis; and sample processing apparatus having one or more test elements;

- (b) attaching a tip to the proboscis to create a metering assembly;
- (c) moving the metering assembly to an initial aspiration position, in which the metering aperture of the tip is immersed in sample liquid;
- (d) creating a partial vacuum with the metering pump, causing a selected volume of sample liquid to be aspirated from a sample container into the tip;
- (e) moving the metering assembly to a dispensing position;
- (f) creating a partial pressure with the metering pump, causing a portion of the sample liquid to be dispensed from the metering tip onto a test element;
- (g) the sample processing apparatus then performing at least one clinical chemistry test and analysis;
- (h) the metering assembly moving to a tip ejection position;
- (i) sealing the metering aperture of the metering tip;
- (j) removing the metering tip from the proboscis;
- [[(j)]] (k) performing a sample quality measurement on the sample liquid in the ejected tip;
- [[(k)]] (l) aspirating a selected auxiliary volume of sample liquid from the tip;

wherein said steps (b)-([[h]] g) are repeated in a primary analyzer cycle; wherein said steps [[(h)-(j)]] (k)-(l) are repeated in a secondary sample quality cycle; such that at least portions of the primary and secondary cycles occur simultaneously.

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

9
Claim 12 (original): The method of Claim 12, further comprising the step of:

- (l) passing the auxiliary volume of sample liquid to a wet chemistry analyzer system.

9
11
Claim 14 (original): The method of Claim 12, further comprising the steps of:

- (l) passing the auxiliary volume of sample liquid to a diluter system;
(m) diluting the auxiliary volume of sample liquid to form a diluted liquid;
(n) passing the diluted liquid to the sample processing apparatus; and
(o) the sample processing apparatus then performing at least one clinical chemistry test and analysis on the diluted liquid.

32
Claim 15 (canceled).

Claim 16 (canceled).

Claim 17 (canceled).

12
Claim 18 (previously presented): The method of Claim 12, wherein ~~an end of the metering tip has an aperture, further comprising the step before said step (i) of removing the metering tip from the proboscis[[:]] further comprises crimping and sealing an end of the metering tip.~~

13
Claim 19 (new): A method of performing measurements on at least a portion of a liquid sample in a clinical analyzer, comprising the steps of:

- (a) providing a clinical analyzer with sample handling apparatus having one or more sample containers holding an amount of sample liquid; with sample metering apparatus having a proboscis, one or more metering tips having a tubular shape with a metering aperture at

Application Number 09/658,356
Amendment dated August 19, 2003
Reply to Office Action dated May 19, 2003

one end, a metering pump coupled with the proboscis; and sample processing apparatus having one or more test elements;

- (b) attaching a tip to the proboscis to create a metering assembly;
- (c) moving the metering assembly to an initial aspiration position, in which the metering aperture of the tip is immersed in sample liquid;
- (d) creating a partial vacuum with the metering pump, causing a selected volume of sample liquid to be aspirated from a sample container into the tip;
- (e) moving the metering assembly to a dispensing position;
- (f) creating a partial pressure with the metering pump, causing a portion of the sample liquid to be dispensed from the metering tip onto a test element;
- (g) the sample processing apparatus then performing at least one clinical chemistry test and analysis;
- (h) the metering assembly moving to a tip ejection position;
- (i) crimping and sealing the metering aperture of the metering tip;
- (j) removing the metering tip from the proboscis;
- (k) performing a sample quality measurement on the sample liquid in the ejected tip;
 - (l) aspirating a selected auxiliary volume of sample liquid from the tip;wherein said steps (b)-(g) are repeated in a primary analyzer cycle; wherein said step (k) is repeated in a secondary sample quality cycle; such that at least portions of the primary and secondary cycles occur simultaneously.